REMARKS

Claims 1-10 and 13-61 are pending in this application, of which claims 1, 16, 25, 29, 39, 40, 46, 47, 51, and 61 are independent. Applicants acknowledge, with appreciation, the Examiner's allowance of claims 29-37 and 39-61.

In this Amendment, claims 1, 16, 25, and 39 have been amended. Care has been exercised to avoid the introduction of new matter. Support for the amendments to the claims can be found in, for example, paragraph [0080] of the specification.

Claims 1-8, 13-22, 24-28, and 38 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Parker et al. (U.S. Patent No. 4,801,380) ("Parker"), Shor et al. (U.S. Patent No. 5,298,767) ("Shor"), and Bohn et al. (U.S. Patent Application Publication No. 2002/0074314) ("Bohn").

In the statement of the rejection, the Examiner asserted that it would have been obvious to modify Parker in view of Shor and Bohn such that the porous semiconductor layer comprises GaN at least because it is known and suitable. This rejection is respectively traversed.

Applicants submit that Parker, Shor, and Bohn, either individually or in combination, do not disclose or suggest a filter including all the limitations recited in independent claim 1. Specifically, the applied combination does not teach, among other things, that a porous semiconductor layer has a light emitting property by electroluminescence, cathode luminescence, or photoluminescence, and has continuous pores, and the porous semiconductor layer comprises a material selected from a group consisting of GaN, AlN, ZnO, ZnF_2, diamond, Ga-Al-N mixed crystals, ZnS, CdS, ZnSe, ZnF_2:Gd, AlN:Gd, diamond:Gd, and CaF_2:Gd.

Parker teaches a method of preparing a porous filter in the following ways: (1) polycrystalline silicon formed on a porous substrate by vapor deposition is anodized to make the silicon film porous, and then oxidized to reduce the size of pores; or (2) monocrystalline silicon is anodized to form a porous silicon film, and the porous film is peeled off, oxidized to reduce the size of pores, and adhered to a porous substrate.

In Parker, polycrystalline or monocrystalline silicon is selected because the following reason: "[A] silicon surface may be etched, oxidized, anodized, and bombarded with ions. Advances in silicon processing have concentrated on improved control of surface modification steps, because silicon's good physical properties allow custom-tailoring of its surface contours. For example, the formation of pores has been of particular interest." Column 1, lines 19-25. Parker selects polycrystalline or monocrystalline silicon only for easily manipulating and altering silicon surface contours by various methods. This clearly differs from the claimed subject matter where compounds other than polycrystalline or monocrystalline silicon are employed for a light emitting porous film. Selection of the materials for the claimed porous filter is made based mainly on light emitting properties, but not the pore formation or surface modification purpose.

Accordingly, it is submitted that Parker teaches away from the claimed invention. As discussed above, Parker selects polycrystalline or monocrystalline silicon in consideration of the easy custom-tailoring feature of surface contours. Parker does not suggest use of a material selected from a group consisting of GaN, AlN, ZnO, ZnF_2, diamond, Ga-Al-N mixed crystals, ZnS, CdS, ZnSe, ZnF_2:Gd, AlN:Gd, diamond:Gd, and CaF_2:Gd, as claimed, in consideration of light emitting properties. This teaching away from the claimed invention by the allegedly teaching reference constitutes potent evidence of nonobviousness. *See*, *Tec Air, Inc. v. Denso Mfg. Michigan, Inc.*, 192 F.3d 1353, 52 USPQ2d 1294 (Fed. Cir. 1999); *In re Bell*, 991 F.2d 781,

26 USPQ2d 1529 (Fed. Cir. 1993); *In re Hedges*, 783 F.2d 1038, 228 USPQ 685 (Fed. Cir. 1986); *W. L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983); *In re Marshall*, 578 F.2d 301, 198 USPQ 344 (CCPA 1978).

Shor discloses selectively etching bulk SiC, forming a porous layer on the surface of the bulk Sic, oxidizing the layer, and stripping it in HF acid. Shor teaches only a SiC porous layer which does not include any of the compounds recited in claim 1. That is, use of GaN, AlN, ZnO, ZnF_2, diamond, Ga-Al-N mixed crystals, ZnS, CdS, ZnSe, ZnF_2:Gd, AlN:Gd, diamond:Gd, or CaF_2:Gd is not considered by Shor.

Bohr teaches that Group III-V materials have characteristic emission bands, and therefore, have light emitting properties. Especially, Bohr teaches that GaN-based materials have short-wavelength light emitting properties. Bohr discloses, in order to move an emission wavelength into a shorter wavelength range, a method of making GaN porous, including depositing a thin discontinuous metal layer on a Group II-V materiel surface, and then, immersing the surface in an oxidizing HF solution to produce porous material.

Bohr suggests that GaN have a light emitting feature, especially in the short-wavelength region. Bohr only teaches that the emission wavelength of GaN can be shifted by altering its morphology, including forming pores on a bulk GaN surface, depositing thin metal layer on the surface, and so on (see paragraphs [0008], [0010], and [0014]). However, there is no disclosure or suggestion in Bohr that the pore-formed GaN has continuous pores. Apparently, Bohr's disclosure is to shift the wavelength of the emitted light from GaN by altering the surface conditions of GaN, not making continuous pores. In fact, there is no guarantee that a GaN plate having continues spores can be produced by the method disclosed by Bohr, i.e., a method of

dipping metal coated GaN into HF acid. Accordingly, there is no reasonable expectation that GaN having continuous pores can be obtained by the method of Bohr.

It is Applicant's understanding of the Examiner's position that Parker's porous layer 10 is replaced with Sohr's layer having a UV luminescence property (first modification), and Sohr's layer is further replaced with Bohr's GaN layer to provide at the claimed subject matter (second modification), even though Parker does not suggest using materials other than polycrystalline or monocrystalline silicon. The second modification of the first modification based on Bohr is required to arrive at the claimed subject matter. This results in a strong indication of a hindsight reconstruction of the claimed subject matter based on the use of Applicants' disclosure as a template. It is noted that the modified device (second modification) does not necessarily has a porous semiconductor layer having continues pores because Bohr does not teach continuous pores in the GaN layer. Therefore, a person skilled in the art having common sense would not be motivated to modify Paker's device based on the teachings of Shor, and then, modify Parker's modified device based on the teachings of Bohr.

Based on the foregoing, Applicants submit that Parker, Shor, and Bohn, either individually or in combination, do not disclose or suggest a filter including all the limitations recited in independent claim 1. The above discussion is applicable to independent claims 16 and 25. Dependent claims 2-8, 13-15, 17-22, 24, 26-28, and 38 are also patentably distinguishable over Parker, Shor, and Bohn at least because these claims include all the limitations recited in independent claims 1, 16, and 25, respectively. Applicants, therefore, respectfully solicit withdrawal of the rejection of the claims and favorable consideration thereof.

Claims 9, 10, and 23 were rejected under 35 U.S.C. § 103(a) as being obvious over Parker, Shor, and Bohn, and further in view of Robertson et al. (U.S. Patent No. 4,966,759) ("Robertson") and Ogata et al. (U.S. Patent No. 6,238,631) ("Ogata").

This rejection is respectfully traversed. Claims 9, 10, and 23 depend on independent claims 1 and 16, respectively. Applicants thus incorporate herein the arguments made in response to the rejection of the independent claims 1 and 16 under 35 U.S.C. § 103 for obviousness predicated upon Parker, Shor, and Bohn. The Examiner's additional comments and reference to Robertson and Ogata do not cure the deficiencies of the applied combination of Parker, Shor, and Bohn. Withdrawal of the rejection of the claims is, therefore, respectfully solicited.

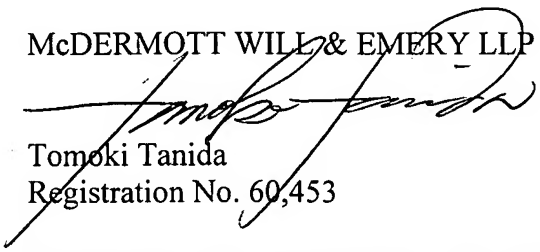
Conclusion

In view of the above remarks, Applicants submit that this application should be allowed and the case passed to issue. If there are any questions regarding this Amendment or the application in general, a telephone call to the undersigned would be appreciated to expedite the prosecution of the application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

McDERMOTT WILL & EMERY LLP



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